

**REMARKS**

Claims 1-44, 48-49, 53 and 55-58 remain pending. Claims 48, 49 and 53 have been rewritten in independent form. No new matter has been added by the claim amendments. Claims 45-47, 50-52, 54 and 59-61 have been cancelled. The applicants disagree with the rejection of claims 45-47, 50-52 and 54 as being unpatentably obvious in view of Price et al. '859 for the reasons stated in Amendment A. However, in order to expedite prosecution of the above pending claims, claims 45-47, 50-52, 54 and 59-61 have been cancelled herein with the intent that these claims will be pursued in a divisional application.

The undersigned acknowledges his April 21, 2005 interview of this application with Examiner Green.

**I. ELECTION / RESTRICTION**

Applicants cancel the Group II claims 59-61.

**II. REJECTION OF CLAIMS 1, 10-17 AND 26-31 OVER FERRIER ET AL.**

Reconsideration is requested of the rejection of claims 1, 10-17 and 26-31 under 35 U.S.C. §102(b) and §103(a). These claims were rejected based on a series of references to Ferrier and Ferrier et al., namely, U.S. Patent Nos. 5,869,130; 6,020,029; 6,146,701; 6,162,503; 6,383,272; 6,419,784; and 6,503,566.

Claims 10 and 11 require the use of a trihydric alcohol. Trihydric alcohols, by definition, contain three hydroxy groups. Ferrier et al. disclose the use of polyethylene glycols. Generally, polyethylene glycols correspond to the formula:  $H-(OCH_2CH_2)_n-OH$ . The "poly" in the term "polyethylene glycol" appearing in the Ferrier et al. patents refers to the number of repeating ethylene oxide groups "n." The "poly" in "polyethylene glycol" has nothing to do with the number of hydroxy groups. "Polyethylene glycols" as a general proposition can have any number of hydroxy groups, and can have any number greater than 3 (or 2, by some definitions) of repeating ethylene oxide units. Accordingly, giving "polyethylene glycol" its broadest definition, it could conceivably encompass some trihydric alcohol species. The situation here, therefore, is that the

references disclose a *genus* --- polyethylene glycols --- which encompasses a vast number of potential monohydric, dihydric, trihydric, tetrahydric, pentahydric, decahydric, etc. *species*, only one of which may be trihydric alcohols. But as emphasized in MPEP 2131.02 and MPEP 2144.08, discussed in applicants' Amendment A, disclosure of a *genus* like "polyethylene glycols" does not anticipate or render obvious a *species* encompassed thereby such as "trihydric alcohols" unless there is further specific teaching in the direction of the species. Here, Ferrier et al.'s further specific teaching is in the direction of Carbowax and Pluronic compounds, with there being no indication whether they are monohydric, dihydric, trihydric, tetrahydric, pentahydric, decahydric, or something else. Accordingly, without some further teaching toward the express requirement of these claims to employ *trihydric* alcohols, these claims are neither anticipated nor rendered obvious by the cited references. MPEP 2112 underscores that a mere "possibility" of a characteristic (e.g., trihydricity) is insufficient to support a rejection.

Claims 12 and 13 require the use of a "trihydric" alcohol and therefore are patentable for the same reasons as claims 10 and 11. These claims are further patentable because they require that the alcohol be *oligomeric*. In sharp contrast to *oligomers*, Ferrier et al. only disclose the use of *polymers*. The differences are underscored by the following IUPAC definitions and further emphasis in applicants' specification:

A polymer is defined by IUPAC as follows:

A molecule of high relative molecular mass, the structure of which essentially comprises the multiple repetition of units derived, actually or conceptually, from molecules of low relative molecular mass.

Note 1. In many cases, especially for synthetic polymers, a molecule can be regarded as having high relative molecular mass if the addition or removal of one or a few of the units has a negligible effect on the molecular properties.

<http://www.iupac.org/publications/pac/1996/pdf/6812x2287.pdf>

An oligomer, in contrast, is defined by IUPAC as:

A molecule of intermediate relative molecular mass, the structure of which essentially comprises a small plurality of units derived, actually or conceptually, from molecules of lower relative molecular mass.

Note 1. A molecule is regarded as having intermediate relative molecular mass if it has properties which do vary significantly with the removal of one or a few of the units.

<http://www.iupac.org/publications/pac/1996/pdf/6812x2287.pdf>

This distinction is underscored on page 12 of applicants' specification in describing one of their preferred oligomers:

This triethylene glycol is an oligomer in that it is a molecule of intermediate relative molecular mass with a structure comprising a small number of units derived from molecules of lower relative molecular mass. This is in contrast to a polymer, which has a high relative molecular mass. This triethylene glycol is also oligomeric in that its properties vary significantly with removal of one of its units; as opposed to polymeric compounds, with which removal of one or a few units has a relatively negligible effect on molecular properties.

Here, Ferrier et al.'s teaching is to select polymers, not oligomers:

Optionally, the adhesion-promoting composition may also comprise a water soluble *polymer*. If used, the water soluble *polymer* is preferably not a wetter or surfactant but is instead a water soluble homopolymer or copolymer of .... Most preferably, the water soluble *polymer* is a *polymer* of (ethylene oxide .... Among the most preferred are the *polymers* of ethylene oxide, or polyethylene oxide sold by Carbowax under the trade name Carbowax. The inventors have found Carbowax 750 and Carbowax MPEG 2000 to be particularly useful. Also particularly useful are the ethylene oxide *polymers* or ethylene oxide-propylene oxide *copolymers* sold by BASF company under the Pluronic tradename. The concentration of the water soluble *polymer* .... (Ferrier et al. '130; Column 5, lines 21 ff.)

Specifically, Ferrier's teaching is to select the Carbowax *polymers*; which have relatively high molecular weights and numerous ethylene oxide repeating units. The smallest Carbowax compound they suggest is Carbowax 750, which has the formula  $\text{CH}_3(\text{OCH}_2\text{CH}_2)_n\text{OH}$  where  $n$  has an average number of 16. (See paragraph 0013 of U.S. Pat. Pub. 20020042492). Their general teaching to select *polymers* and their examples of Carbowax 750 and Carbowax MPEG 2000, therefore, cannot fairly be

deemed to anticipate or render obvious applicants' express requirement to select *oligomers*.<sup>\*</sup> As such, these claims are neither anticipated nor obvious.

Claims 16 and 17 require the use of a primary alcohol which, as in claims 12 and 13, are *oligomeric*. These claims are therefore patentable for the same reasons as claims 12 and 13; i.e., because the cited references disclose no oligomers, and disclose only polymers.

Claims 26 and 27 require the use of "triethylene glycol." "Triethylene glycol" corresponds to a polyethylene glycol having the general formula  $H-(OCH_2CH_2)_n-OH$ , wherein "n" is 3. Ferrier et al. refer to "polyethylene glycols." According to some definitions of "polyethylene glycol," the term requires that "n" is greater than 3. But according to other definitions, "n" is 3 or more. Accordingly, it is the Office's position that, reading the broadest definition, "polyethylene glycols" encompass "triethylene glycol," "tetraethylene glycol," "pentaethylene glycol," "decaethylene glycol," and any number of repeating units. The references therefore disclose a *genus* which encompasses the triethylene glycol *species* of claims 26 and 27. As stated in MPEP 2131.02 and MPEP 2144.08, discussed in applicants' Amendment A, disclosure of a *genus* like "polyethylene glycols" does not anticipate or render obvious a *species* encompassed thereby such as "triethylene glycol" unless there is further specific teaching in the reference in the direction of the species. Here, however, Ferrier et al.'s specific teaching is to select the Carbowax polymers, *all* of which have *more* than 3 repeating units; and specifically Carbowax 750 and Carbowax MPEG 2000, which have an average number of 16 or more repeating units. Ferrier et al.'s general teaching to select polyethylene glycols and their examples of Carbowax 750 and Carbowax MPEG 2000, therefore, cannot fairly be deemed to anticipate or render obvious applicants' express requirement to select *triethylene glycol*. As such, these claims are neither anticipated nor obvious.

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<sup>\*</sup> Pluronic compounds, similarly, are polymers—they have seven or more ethylene oxide and propylene oxide repeating units and molecular weights between 1100 and 14,600.

With regard to the remaining claims rejected over the Ferrier et al. references --- claims 1, 14, 15, 28, 29, 30, and 31 --- they all specifically require use of an alcohol "which is effective to increase copper-loading in the composition." The Office has asserted that because Ferrier et al. disclose the use of "polyethylene glycols," and this encompasses the triethylene glycol applicants state has this "copper-loading" characteristic, this claim requirement is inherently met. However, "polyethylene glycols" encompass "triethylene glycol," "tetraethylene glycol," "pentaethylene glycol," "decaethylene glycol," and any number of repeating units. The references therefore disclose a *genus* which encompasses the triethylene glycol *species*. In the context of claim 1, that is, the references disclose a *genus* which encompasses an enormous number of *species*, only a small proportion of which are the *species* which "are effective to increase copper-loading in the composition." As stated in MPEP 2131.02 and MPEP 2144.08, disclosure of a *genus* like "polyethylene glycols" does not anticipate or render obvious a *species* encompassed thereby unless there is further specific teaching in the reference in the direction of the *species*. In the present situation there is no such teaching. In fact, in view of the fundamental distinctions between a) the species (Carbowax and Pluronic) Ferrier et al. disclose and b) the compounds applicants note are part of applicants' species, Ferrier et al. teach away from applicants' species.

In view of the above, applicants respectfully request reconsideration and withdrawal of the rejection of claims 1, 10-17, and 26-31 over the various Ferrier et al. references.

**III. REJECTION OF CLAIMS 1, 10-17, 26-43 and 55-58 OVER MONTANO ET AL.**

Reconsideration is requested of the rejection of claims 1, 10-17, 26-43 and 55-58 under 35 U.S.C. §103(a) over Montano et al. (U.S. 6,752,878). These claims were rejected under §103(a) over Montano et al. for the same reasons as above over the Ferrier et al. references. The section cited in Montano et al. is nearly identical to the section cited in the Ferrier et al. references. Montano et al. describe the same water soluble polymers, and teaches the selection of the same polyethylene glycols, Carbowax 750 and Carbowax MPEG 2000. With regard to claims 1, 10-17, and 26-31,

therefore, these claims are patentable over Montano et al. for the same reasons they are patentable over Ferrier et al. discussed above.

With regard to claims 32-43, they depend from claim 1 and further require various aspects relating to surfactants and inorganic acids. Depending from claim 1, these claims each require selection of an alcohol "which is effective to increase copper-loading in the composition." The Office has asserted that because Montano disclose the use of "polyethylene glycols," and this encompasses the triethylene glycol applicants state has this "copper-loading" characteristic, this claim requirement is inherently met. However, "polyethylene glycols" encompass "triethylene glycol," "tetraethylene glycol," "pentaethylene glycol," "decaethylene glycol," and any number of repeating units. The reference therefore discloses a *genus* which encompasses the triethylene glycol *species*. In specific regard to claims 32-43, that is, the reference discloses a *genus* which encompasses an enormous number of *species*, only a small proportion of which are the *species* which "are effective to increase copper-loading in the composition." As stated in MPEP 2131.02 and MPEP 2144.08, discussed in applicants' Amendment A, disclosure of a *genus* like "polyethylene glycols" does not anticipate or render obvious a *species* encompassed thereby unless there is further specific teaching in the reference in the direction of the *species*. In the present situation there is no such teaching. In fact, in view of the fundamental distinctions between a) the species (Carbowax and Pluronic) Montano et al. disclose and b) the compounds applicants note are part of applicants' species, Ferrier et al. teach away from applicants' species.

Claims 55-58 similarly require the use of an alcohol which is effective to increase copper loading in the composition. These claims are therefore patentable over Montano et al. for the same reasons as the claims 1 and 32-43, for example.

**IV. OBJECTION TO CLAIMS 2-9, 18-25, 44, 48-49, AND 53**

Claims 2-9, 18-25, and 44 depend from claim 1, which remains in the application, and are therefore submitted to be patentable for the reasons stated above in connection with claim 1.

Claims 48, 49, and 53 have been amended to be independent, as suggested in the Office action. No additional claim fees should be due in view of the cancellation of independent claims 45, 51, and 59.

**CONCLUSION**

In view of the foregoing, applicants respectfully request a Notice of Allowance for all pending claims 1-44, 48-49, 53 and 55-58.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Paul I. J. Fleischut". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

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